DOCUMENT RESUME

ED 081 529 56 RC 007 236

AUTHOR	Lampman, Henry P.
TITLE	Southeastern New Mexico Bilingual Program. Final Report.
INSTITUTION	Artesia Public Schools, N. Mex.
SPONS AGENCY	Bureau of Elementary and Secondary Education (DHEW/OE), Washington, D.C. Div. of Bilingual Education.
PUB DATE	[73]
GRANT	OEG-0-9-410028-3443(280)
NOTE	25p.
EDRS PRICE	MF-$0.65 HC-$3.29
DESCRIPTORS	Academic Achievement; Anglo Americans; *Bilingual Education; *Comparative Analysis; *Grade 2; *Program Evaluation; Self Concept; Social Behavior; *Spanish Americans; Testing
IDENTIFIERS	Artesia; *Southeastern New Mexico Bilingual Program

ABSTRACT

Academic growth and personal-social growth of 20 second grade children in the Southeastern New Mexico Bilingual Program at Artesia are compared to 20 second grade children in the standard program. The groups were matched by chronological and mental age, IQ, family income, family situation (both parents, only father, or only mother), number of children in family, parents' education and occupation, and home language. The academic growth was measured using the Peabody Picture Vocabulary Test in both English and Spanish, the Stanford Achievement Test, and an English and a Spanish test in sentence completion format measuring responsiveness. The effects of the bilingual program on the self-image and social interaction of the child were evaluated by self-rating scales administered orally and recorded by the teacher aide on a pretest and posttest basis. Findings showed that the children in the bilingual program made greater progress; both groups of children had a high self-esteem at the beginning of the year but as they grew older their self-concept lowered; there was no significant difference in their social interaction; and the bilingual group responded more rapidly in both English and Spanish. (NQ)

ED 081529

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FINAL REPORT

By

Dr. Henry P. Lampman
Evaluator

SOUTHEASTERN NEW MEXICO BILINGUAL PROGRAM
Artesia Public Schools
1106 West Quay Avenue
Artesia, New Mexico 88210

[1973]

RC 007236

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The Evaluation Design

The design for studying the results of this experiment in bilingual education was broadly to determine academic growth in English and in Spanish for the children in the program and to compare them with a control group in the standard program.

In addition the personal-social growth of the children in the program was also evaluated and compared with control groups. It was hypothesized that the children in the bilingual program would "develop a better self-image, be more responsive and be more socially involved" than those not in the program.

The impact of the program on teachers, aides, parents and community was also given some informal study.

The selection of instruments presented a serious problem in evaluation, there being no instruments for most purposes that were validated for this population. Perhaps one of the more significant outcomes is the evaluation of the instruments themselves.

The Evaluation Instruments

For future efforts at evaluation the following notes are offered:

1. The instruments here used to evaluate the local variety of Spanish spoken are grossly inadequate. A Spanish speaking instrument would be better than the adaptation of the English Peabody Picture Vocabulary Test, but still inadequate.
2. Because progress at this level is slow for children who are learning English when they enter school, the Achievement Test should be found

which more adequately samples and discriminates progress at the first and second grade level. An oral reading test might be better.

3. The Goodenough Draw-A-Man Test proved valuable in matching the initial control and experimental groups.
4. The Sociometric Test analysis proved most revealing and helpful.
5. The Self Image Test devised for use in this situation did not discriminate well between students at this age level.
6. The Response Test in English and Spanish devised for use in this situation proved useful and seems appropriate to the objectives but needs further refinement in presentation, recording and scoring.
7. Doubt is cast upon many of the test results because of the number of people participating in test administration and failure to rigidly train and discipline them in the standard requirements of the task. This failure arose because of a late beginning and the necessity of doing pre-testing as soon as possible. It must be planned well in advance. The assignment of a small group to do all the testing would also help.

The Control Group

The selection of controls against which to measure the progress of the bilingual program presented a problem. Artesia is a small school system and a small city and comparable situations to each classroom and the student population did not exist so that comparisons made would be with obviously unlike populations. Therefore, the decision was made to select twenty from the bilingual second graders, matching other students with them who were not in the program.

Matching was done on the following basis:

Each bilingual student was matched with a standard program student who:

1. Had a chronological age no more then two months different.
2. Mental age as measured by the Goodenough Draw-A-Man Test was no more then three months different.
3. IQ as measured on the same instrument no more then ten points different.
4. Family receiving welfare or not.
5. Income of family if not receiving welfare was close to the same.
6. Family situation comparable, father and mother, father only, mother only.
7. Number of children:
    a) three or less
    b) four to seven
    c) over seven
8. Parents occupation:
    a) skilled
    b) unskilled
9. Parent education:
    a) under nine years
    b) over nine years
10. Home language:
    a) Spanish
    b) English
    c) Spanish and English

Fortunately the Director and/or the Home School Coordinator knew these these families well in most instances and they were able to gather the necessary data on the few others needed. Detailed information on the matching of groups is available.

Peabody Picture Vocabulary Test (English)

Both bilingual and control groups were pre-tested with this instrument and post-tested at school year's end providing an objective measurement of progress in mastering of English vocabulary.

The table below shows the results:

	PRE-TEST		POST-TEST		
First Grade	Raw Score	Mental Age	Raw Score	Mental Age	Net Gain in Raw Score
Bilingual Group	40.45	6 yrs., 4 mo. 22 days	50.79	8 yrs., 1 mo. 19 days	10.34
Control Group	44.74	6 yrs. 8 mo. 28 days	51.78	8 yrs. , 4 mo. 20 days	6.64

Second Grade	Raw Score	Mental Age	Raw Score	Mental Age	Net Gain in Raw Score
Bilingual Group	54.90	9 yrs., 1 mo.	60.40	10 yrs., 8 mo. 17 days	5.50
Control Group	54.00	8 yrs., 0 mo. 28 days	60.47	10 yrs. 8 mo. 30 days	6.47

It will be noted that both control and bilingual groups at both grade levels made gains. The application of the chi-square test shows these differences to be statistically significant at the 1% level of confidence. The mean gains of control on bilingual groups were similar and statistically differences did not develop.

An examination of the pre and post-test scores of Spanish speaking children in the control group and bilingual group shows the following:

Peabody Picture Vocabulary Test (English)

Bilingual Group	Raw Score Mean Gains	Control Group	Raw Score Mean Gains
First Grade			
Spanish speaking children	10.9	Spanish speaking children	8.9
English speaking children	6.6	English speaking	1.66
Second Grade			
Spanish speaking children	9.53	Spanish speaking children	7.46
English speaking children	loss of 14 points	English speaking children	5.37

It will be noted that the bilingual program produced more gains than the control group in every breakdown except the second grade English speaking children where a loss occurred. No reasonable explanation for this loss appears.

From the same chart it is evident that Spanish speaking children made greater gains in English on both grade levels then English speaking children and this seems proper and reasonable because they began at a lower base line. None of the scores on these charts are comparable to normal statistical tests for significant differences, the number of cases being too small to meet statistical standards. However, from this evidence the objectives of the program appear to have been met for the most part, with children making progress in the program greater than that made in the control group.

Peabody Picture Vocabulary Test (Spanish)

A Spanish language adaptation of the Peabody was used as a means of establishing growth in the Spanish language with the following results.

	PRE-TEST		POST-TEST		
First Grade	Raw Score	Mental Age	Raw Score	Mental Age	Net Gain Raw Score
Bilingual Group	16.05	2 yrs., 6 mo. 3 days	29.26	4 yrs., 8 mo. 16 days	13.21
Control Group	16.26	2 yrs., 6 mo. 15 days	24.21	3 yrs., 2 mo. 22 days	7.95

Second Grade Grade	Raw Score	Mental Age	Raw Score	Mental Age	Net Gain in Raw Score
Bilingual Group	28.90	5 yrs., 8 mo.	43.50	8 yrs., 4 mo.	14.60
Control Group	22.75	3 yrs., 6 mo. 18 days	27.95	4 yrs., 4 mo. 26 days	5.20

The gains in Spanish language skills in the bilingual program are great and the gains as compared with gains in the control group do pass the test of significant difference at the 1% level of confidence.

The Stanford Achievement Test

Primary 1 Battery was used to measure the achievement at the year's end. Results are stated below on the table;

Stanford Achievement Test at school year's end:

	Word Reading Mean Grade Score	Paragraph Reading Mean Grade Score	Vocabulary Mean Grade Score	Word Study Skills Mean Grade Score
First Grade Bilingual Group	1.47	1.54	1.7	1.81
First Grade Control Group	1.62	1.68	1.66	1.62
Second Grade Bilingual Group	2.06	2.00	2.00	2.31
Second Grade Control Group	2.4	2.32	2.07	2.52

In this test of achievement in reading and language skills at year's end there are differences between the experimental and control groups, all of them in favor of the control group, but the differences are small and none pass the test of significant difference, largely because the actual count differences in raw score at this level of the test battery are small. It must be concluded that no significant difference is found between the control and experimental group in achievement as measured by this instrument.

Examination of Stanford Achievement Test scores at year's end produced the following:

First Grade	Bilingual Group Mean Grade Score	Control Group Mean Grade Score
Spanish speaking children	1.39	1.7
English speaking children	1.72	1.93
Second Grade		
Spanish speaking children	1.8	2.3
English speaking children	2.48	2.6

On this test the control group did better than the experimental group in all categories and English speaking children made greater gains than the Spanish speaking children in all categories. Again, however, the difference is not statistically significant.

Perhaps the best conclusion from the results of both Peabody and Stanford Tests is that the results will depend upon the test and it's suitability to the population tested and the program being evaluated.

SELF-IMAGE EVALUATION ON PRE-TEST

An effort to evaluate the effect of the bilingual program upon the self-image of the child was made. A self-rating scale was developed, administered orally to the children and recorded by the teacher aide.

A general surprise was the high self-esteem indicated by all pupils at the year's beginning. The distribution of responses was so strongly skewed toward high self-esteem that the test discriminated poorly between students, nor was there any significant difference between 1st and 2nd grades. Spanish-American children rated themselves as high as their Anglo-American peers rated themselves.

If, (as the proposal for this program hypothesizes and as such research tends to substantiate) Spanish-American children tend to develop poor self-images and their education is shortened or limited by this poor self-image, it appears clear that the damage occurs at a later time.

The mean self-estimates of students in each classroom were calculated. There were some differences between them and the numbers involved are too few to safely generalize about these differences between classes. However, teachers were rated by two supervisors according to their effectiveness and there was a remarkable tendency for the more effective teachers to have students who thought more highly of themselves. A maximum of praise and a minimum of criticism appears characteristic of the more effective teachers.

Teachers were asked to rank their pupils in the order of their demonstrated self-concept as a means of estimating the validity of the self-concept test. A clear relationship between a positive score on the self-image test and teacher ranking of self-image was established.

In 65 cases, the teacher ranking was close to the self ranking. In 26 cases it was far removed and in 27 cases an intermediate distance away. Some validity for the self-rating scale is thus established. A statistical rank order correlation is needed.

In the teacher rankings of children's self-esteem there was no evident relationship between ranking and cultural background except that one teacher ranked Spanish-American students systematically lower then they ranked themselves.

SELF-IMAGE EVALUATION ON POST-TEST

This is a self-rating scale for the child, a copy of which is attached.

Validation efforts are needed but some evidence is presented in the previous section to indicate that it has real meaning.

Post-test results are below:

Mean Scores (maximum possible score - 20)

	Pre-Test	Post-Test
First Grade Bilingual Group	17.3	18.68
First Grade Control Group	17.7	16.63
Second Grade Bilingual Group	17.8	17.1
Second Grade Control Group	16.9	16.8

There were extremely small differences between Spanish speaking and English speaking students. While scores favor the bilingual group and border on being statistically significant, the unestablished internal validity of the test makes any conclusion dubious. It is safest simply to note and conclude that the self esteem of the first and second graders is characteristically high regardless of his cultural group. As he grows older something presumably happens to lower this self concept.

SOCIOMETRIC EVALUATION ON PRE-TEST

A sociometric study was conducted to determine the degree to which social interaction was affected by the bilingual program. More specifically it was hoped that friendship and the desire for friendship between cultural groups was effectively encouraged by the program.

Standard sociometric procedures were employed with the questions being asked orally and answers recorded by the teacher aides. The control groups used for other purposes could not be used to make meaningful comparisons with bilingual classes because the number of children of each cultural group in any given classroom was too determinative of the choice frequency. Therefore, a first grade bilingual class and a first grade control classroom were chosen which had most nearly equal proportions of the two cultural groups. A similar equating of two second grade classrooms was made. This unfortunately means that the factor of the teacher, the aide or some other factor could easily produce any results that appear rather than the program, but unfortunately no other meaningful comparison seemed possible.

The most striking revelation of this whole procedure involves the fact that one school containing three of the six classrooms in the program had an almost exclusively Spanish-American population. Only five surnames appeared in the three classes which were not Spanish-American. Thus the educational objective of intercultural social interaction became virtually unachievable before school opened. One is reminded of the U.S. Supreme Court decision of 1954 which declared segregated education to be by it's nature unequal.

At the first grade level, Mrs. Parker's bilingual class in Central School which has 12 Anglo-American and 11 Spanish-American children was compared to Miss Carman's class (control group) which had 10 Anglo-American and 7 Spanish-American children.

Mrs. Parker's (bilingual) class made 23% in-group choices
28% out-group choices

Miss Carmen's (control) class made 29% in-group choices
20% out-group choices

An in-group choice is defined as a child with Spanish surname chosing a peer of Spanish surname or a child of Anglo-American surname chosing a peer of Anglo-American surname. An out-group choice is defined as one in which a child of either group choses from the other group.

It will be noted that the percentage of the total choices does not total 100%. This is because tabulations were made of children chosen and repetitions in which the same child is chosen more then once by a peer are not tabulated. Thus, a Spanish-American child may choose two Spanish-American friends, repeating their names in three more choices. He would have made 20% of in-group choices and 30% out-group choices in this tabulation. This method was chosen as being more representative of this child's attitudes then counting his repetitions.

At the second grade level, Mrs. McPherson's bilingual class with eight Anglo-American and thirteen Spanish-American surnames was compared with Mrs. Hubbard's control group class which had ten Anglo-American and nine Spanish-American surnames.

Mrs. McPherson's (bilingual) group made 33 1/2% in-group choices
25% out-group choices

Mrs. Hubbard's (control) group made 32% in-group choices
34% out-group choices

At both first and second grade level the groups seemed adequately equated such differences as existed being small. If large differences appear at the end of the school year it will be concluded that something other then pre-existing differences between the experimental and control group accounted for the development of differences. Furthermore, relations between groups appeared ideal as school began, children chosing children across cultural barriers as frequently as within them. If less democratic standards prevail at a later time it seems clear that they must develop after the second grade level. Examination of the choice patterns of all children in bilingual classes confirmed that choices were made across the cultural barriers as often as in-group choices were made. One negro child was chosen by others more often then most of his classmates. Less frequently chosen children in all groups were those identifiable as very shy children or those with behavior problems.

SOCIOMETRIC EVALUATION ON POST TEST

In only two of the four classes were there enough Anglo-American children to make adequate sociometric analysis. In those two classes, Mrs. McPherson's class at Yucca School and Mrs. Parker's class at Central School the following results applied at year's end.

Mrs. McPherson's class - 28% of the student choices were in-group choices.
32% of the choices were out-group choices.

Mrs. Parker's class - 39% of the student choices were in-group choices.
35% of the choices were out-group choices.

Unfortunately, post-testing was not done on the control group to see whether it also sustained the degree of interaction that appeared in pre-testing.

Curious to know at what age conventional prejudice begins to influence choice, the Evaluator and Director sought data from a sixth grade and a ninth grade class. The following results appeared:

Sixth Grade:

38% of Spanish speaking children made out-group choices.
24% of Spanish speaking children made in-group choices.

while:

13% of Anglo children made out-group choices.
34% of Anglo children made in-group choices.

Apparently at this level the ascendency of the Anglos had convinced the Spanish - Americans.

Ninth Grade:

15% of Spanish-Americans made out-group choices.
40% of Spanish-Americans made in-group choices.

while:

8% of the Anglo children made out-group choices.
40% of the Anglo children made in-group choices.

In early adolescence the adult pattern is congealed. It appears likely that if a bilingual program or any program is to break down the traditional patterns it will have to continue through the pre-adolescent and into the adolescent years.

THE SPANISH AND ENGLISH RESPONSE TESTS

It was observed by several persons in this program that Spanish-American children in this area tend to respond orally less readily then their Anglo-American peers. This slow response, some-times failure to respond, to a question becomes a major obstacle to learning when it occurs. In the absence of response, reinforcement of good responses and correction of poor responses is not possible, hence teaching is not possible. This is complicated by the fact that in the classroom where other children rush to respond a pattern is established and often repeated. An observant staff member of that cultural background stated that she felt the maxim,"children are to be seen and not heard, " applies more in the Spanish-American home, that a good child was a quiet child.

An objective of this program is to increase that responsiveness, and it is hypothesized that a bilingual-bicultural approach may produce readier response.

An English and a Spanish test were devised in the sentence completion format to measure responsiveness. A copy of each instrument is appended.

The test was scored by recording the total time taken for the test and also scored on the following scale.

no response
in-appropriate, incomplete or incorrect response
response in the other language
correct and adequate response

Two scores were tabulated - time and total arithmetical score from the above scale were plotted.

The Response Test in Spanish and English was an adaptation of the sentence completion technique, the technique for the purpose of measuring degree and quality of responses given by children to oral stimuli. The technique still seems a good one for the purpose but the results obtained were so chaotic that a defect in the design or the administration was evident.

Inquiry into the administration of the test indicates that inadequate standardized instructions were provided for the examiners, that the several examiners administered in different ways and that therefore, valid comparisons became impossible. The degree of urging and encouragement and the degree in which the examiners were known to the children also produced these wide and otherwise inexplicable variations.

Probably in future use, one examiner known or unknown to all the children in the same degree should administer this test.

The appended charts show scores of first grade students compared with control groups on both tests and second grade students compared with control groups on both tests.

It will be noted that both first and second grades, both bilingual and control groups scored higher on the English response test then on the Spanish part. All groups also responded more rapidly in English. This confirms the observation made elsewhere that this is not truly a Spanish speaking population, but a partially Spanish speaking population with poor language development in both languages, that is culturally (linguistically) impoverished.

The bilingual groups all scored higher then control groups on the Spanish portion of the test. The testing was unfortunately not done until school was in session for a few weeks and it is believed that the teaching and familiarization with the situation of using Spanish in school produced t the superior score in the bilingual classes.

At the second grade level the bilingual group responded more rapidly in both English and Spanish then the control group. This appears to be a product of the bilingual instruction for more then a year, supporting the hypothesis that responsiveness is a product of the program.

A year end questionnaire to the teachers and aides, not only in Artesia but in the surrounding project area brought interesting replies. The questionnaire was unsigned and so the individual situation could not be identified. The questionnaire, tabulated, is appended. A surprising degree of agreement appeared.

Most of the teachers and aides felt that they understood the objectives of the program, that the majority of the objectives were achieved, that the learning of the Spanish language was very important to both child and teacher.

They scattered much in the degree to which Spanish had been learned in the classroom and the degree to which the standard English curriculum was felt to be achieved. They felt that both languages had been learned by both groups of children, that the Spanish speaking child had become more responsive and socially involved, that the para-professional had been very effective, approved the supervision and administration of the program and the instructional program at the College of Artesia and the in-service training.

Generally speaking they felt the program had been accepted and understood by other teachers, administration and by the community.

There were exceptions with greater enthusiasm on the one hand and critical feelings on the other. Those who chose to write their feelings appeared to be on both extremes.

Appended are a number of the comments.

PARENT INVOLVEMENT

It has been the general experience of schools that parent involvement of middle class parents, majority group, is easy to obtain but that lower class families from minority groups seldom become involved.

A substantial effort was made in this program to secure more involvement and teachers reported that enabling Spanish-American parents to do it in their own language helped substantially.

It appears significant that an average of 47 visits by the parents to each classroom occured. Perhaps more important, most of these visits represented some kind of actual contribution and participation rather then merely a passive visit.

EVALUATION SUMMARY

A study of the Artesia Bilingual Program by means of a matched control group with intellectual, academic and personal-social instruments, supplemented by data from teachers and community, has yielded the following conclusions:

1. Few of the children of Spanish-American background have well developed language in either Spanish or English, speaking rather a blend, and needing language development in order to be ready for reading. Reading should probably be delayed until language development is adequate. The same thing appears to apply to some of the Anglo-American population in lesser degree.
2. Defacto segregation in these schools prevents the full development of some Spanish-American children including the social developments which automatically come with association.
3. Gains in English language skill and English academic skill are essentially the same in the bilingual program as in the standard program.
4. Gains in the Spanish language skills are much greater in the bilingual program.
5. Efforts to measure the self-image of these young children produced evidence that they almost all have positive self-images at this time.
6. Sociometric testing shows excellent, almost ideal inter-group relationships at this level, not necessarily related to the program. Sixth and Ninth grade children show marked in-group preferences.
7. Gains in Responsiveness:

   Response Tests were not valid.

8. The community of Artesia, both the Anglo-American and Spanish-American segments of the community and the power structure as well has come to understand, accept and endorse the bilingual program.
9. Teachers who experience the bilingual approach and the use of aides tend to endorse the objectives and use of both more then those who are not involved. The bilingual teaching group is also more convinced of the need to work with parents.

COMMENTS;

"Most of the objectives of this project were not met because I was not allowed to present subject matter in Spanish."

"I did not learn Spanish because I was not allowed to teach Spanish."

"When selecting a Lab Teacher and a school be sure that the Lab Teacher and the principal of that school are willing to participate in this program. My Lab Teacher and principal did not care for this program at all."

"I think we should do all we can to keep this program."

"I have found it's much easier for the child to learn then the teacher ------ still trying, however."

"Has been very interested --- cooperated in every project; even beyond what we asked."

"Working with the bilingual program gave me not only a new outlook in teaching but a renewed enthusiasm. I have become aware of needs of certain children. I feel I am a better teacher because of the program and I do appreciate having been a part of it. Next year for those participating, I would suggest objectives be outlined at the beginning of the year and closer communication between the Director and Lab Teachers. Thank you for this year's opportunity."

"I would like to take this opportunity to thank you for letting me participate in the program. It has been a most enjoyable adventure. Nadine Briones is, in my opinion, the finest para-professional anyone could ask for. In fact, the"para"should be dropped, she is truly a "professional". The children will always remember her and be grateful for the invaluable experience they shared with her! Me too!"

"I feel that not only has this been an enriching experience for the children but also for the teacher. It is gratifying to have the assistance of an expert. I particularly enjoyed the workshops we attended. I feel we might do a little better with a little more suggested improvements. As all workers grow to be more familiar with the program, it's objectives, possibilities in the area, etc. I feel we shall see great results. Elvira has done a good job and I feel happy to have an opportunity to utilize her knowledge and skill in my classroom."

"There were some questions and misunderstandings about the program, however, I feel much progress was made. Now that all of us have a better understanding of the how and why of the program, we can make progress. Working as a para-professional is a wonderful experience and hopefully we can fulfill the objectives of the bilingual program."